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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,576	03/21/2001	Anindya Chakraborty	43997	2729

26327 7590 08/05/2005

THE LAW OFFICE OF KIRK D. WILLIAMS
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EXAMINER	
GREY, CHRISTOPHER P	
ART UNIT	PAPER NUMBER
2667	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/813,576	CHAKRABORTY, ANINDYA	
	Examiner	Art Unit	
	Christopher P. Grey	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. Responsive to the amendment received on May 3, 2005, amended claims 14, 24, 29, 32 and 34 are entered as requested.

2. **The text of those sections of Title 35, U.S Code not included in this action can be found in a prior Office action.**

3. Claims 1-11, 13-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rastogi et al. (US 6205449) in view of Mikkelsen et al. (US 6789178)

Claim 1, 13 Rastogi et al. ('Rasogi' hereinafter) discloses a method/system for allowing a secondary computer/ database (see element 120 in fig 1) to be operated as a hot spare (standby). Rastogi discloses a primary database residing on a primary computer (element 110 in Fig 1) and associated with a transaction logger that maintains (transaction updating) log records of transactions/entries. Rastogi also discloses a transaction processor that transmits the log records to the secondary database (transaction updating in the secondary database). The logs in both the primary and secondary databases ensure that the transactions that are transmitted are applied (bulk updating). Rastogi discloses keeping the secondary system in continuous synchronization with the primary system (disclosed in Col 3 line 9- Col 4 line 2). Rastogi does not disclose transaction updating the second database with the new transaction request before the bulk updating is complete.

Mikkelsen et al. ('Mikkelson' hereinafter) discloses a method/system designed to maintain the synchronization across multiple data recording devices and controllers (databases/storage devices). Mikkelsen discloses a primary storage device that sends update information (update information descriptor) in the form of an identifier/indicator to a secondary storage device. The secondary controller/device receives the update information (transaction update) that triggers the secondary data recording device to record (bulk updating) the appropriate information at the appropriate location. The secondary controller sends an acknowledgement to the primary to indicate successful updating. Before the transaction is complete an acknowledgement may be sent to the primary controller indicating that the update has been stored and will be carried out later (Disclosed in Col 8 line 63- Col 9 line25), giving rise to new update information (transaction updating) being passed to the secondary device.

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the method/ system of maintaining synchronization in a hot spare database disclosed within Rasogi's invention, with the method/system disclosed by Mikkelson who discloses sending update information between a primary and secondary storage device in order to accomplish synchronization. The motivation for this combination is to improve availability of information stored and to reduce the time and/or resources required to restore access to a storage device after a disaster or abnormal event (Mikkelson: Col 4 line 55-60).

Claim 2 Rasogi discloses a primary database (active) residing on a primary computer (element 110 in Fig 1). Rastogi discloses a secondary computer/ database

(see element 120 in fig 1) being operated as a hot spare (Col 2 lines 45-50). The motivation is the same as that for claim 1.

Claim 3 Rastogi discloses keeping the secondary system in continuous synchronization (resynchronization/reconciliation) with the primary system (disclosed in Col 3 line 9- Col 4 line 2). The motivation is the same as that for claim 1.

Claim 4 Rastogi does not disclose bulk updating including sending a plurality of bulk update messages from the active device to the standby device.

Mikkelson discloses sending one or more (plurality) commands (bulk update messages) to a secondary storage device, triggering the secondary device to record the corresponding information onto a secondary storage medium (Col 5 line 8-21). The motivation is the same as that for claim 1.

Claim 5 Rastogi discloses a transaction processor that transmits the log records to the secondary database (transaction updating in the secondary database). The motivation is the same as that for claim 1.

Claim 6 Rastogi discloses a dirty page table that keeps a record of updates (disclosed in Col 7 line 63- Col 8 line 2) but does not disclose grouping a plurality of entries.

Mikkelson discloses the information (plurality) being sent to the secondary device containing an update information descriptor that specifies (grouping) a time stamp, identifiers, location, and the content of information to be written (disclosed in Col 8 line-63 Col 9line 11), giving rise to the ease of grouping. The motivation is the same as that for claim 1.

Claim 7, 8 Rastogi does not disclose bulk updating including sending a plurality of bulk update messages from the active device to the standby device.

Mikkelson discloses sending one or more (plurality) commands (bulk update messages) to a secondary storage device, triggering the secondary device to record (bulk update) the corresponding information onto a secondary storage medium (Col 5 line 8-21). The motivation is the same as that for claim 1.

Claim 9 Rastogi discloses the secondary device acting as a hot spare (standby) where the network switches from a primary database to a secondary database upon fault (Col 3 lines 35-46). The motivation is the same as that for claim 1.

Claim 10 Rastogi discloses keeping the secondary system in continuous synchronization (resynchronization/reconciliation) with the primary system (disclosed in Col 3 line 9- Col 4 line 2). The motivation is the same as that for claim 1.

Claim 11 Rastogi discloses a dirty page table (element 260 Fig 2) that keeps a record of updates (disclosed in Col 7 line 63- Col 8 line 2). The motivation is the same as that for claim 1.

Claim 13 Rastogi discloses primary and secondary computers/databases (elements 121 and 111 in Fig 1). The motivation is the same as that for claim 1.

Claim 27, 28, 29, 32, 33 Rastogi discloses system/ method comprising a primary (active) database (apparatus) and parameters associated with that primary database indicating the relative synchronization of both the primary and a secondary (standby) database. Rastogi also discloses a transactional logger associated with the primary database that maintains the log records of transactions. Rastogi discloses a tranaction

processor that transmits log records to the secondary database triggering updating (Col 2 lines 23-44). Rastogi does not disclose the active controller updater composing a plurality of transactional update messages prior to the indication that none of the plurality of entries requires bulk synchronization.

Mikkelsen et al. ('Mikkelson' hereinafter) discloses a method/system designed to maintain the synchronization across multiple data recording devices and controllers (databases/storage devices). Mikkelsen discloses a primary storage device that sends update information (update information descriptor) in the form of an identifier/indicator to a secondary storage device. The secondary controller/device receives the update information (transaction update) that triggers the secondary data recording device to record (bulk updating) the appropriate information (or no information) at the appropriate location. The secondary controller sends an acknowledgement to the primary to indicate successful updating. Before the transaction is complete an acknowledgement may be sent to the primary controller indicating that the update has been stored and will be carried out later (Disclosed in Col 8 line 63- Col 9 line25), giving rise to new update information (transaction updating) being passed to the secondary device. The motivation is the same as that for claim 1.

Claim 14, 15, 34 Rastogi discloses a dirty page table that keeps a record of updates (disclosed in Col 7 line 63- Col 8 line 2). Rastogi also discloses a transaction processor that transmits log records (transactional updating) to a secondary storage device (disclosed in Col 3 lines 35-46), but does not disclose determining if a group of entries is subject to a bulk update technique and grouping a plurality of entries.

Mikkelson discloses the information (plurality) being sent, containing an update information descriptor that specifies (grouping) a time stamp, identifiers, location, and the content of information to be written (disclosed in Col 8 line-63 Col 9line 11), giving rise to the ease of grouping. The receipt of the update information (transaction update) triggers the recording (bulk updating) of the appropriate information (or no information) at the appropriate location (Disclosed in Col 8 line 63- Col 9 line25). The motivation is the same as that for claim 1.

Claim 16, 17 Rastogi discloses a transaction processor (see fig 1) for transmitting log records (transactional updating). After log records are received, a secondary system (see element 120 in Fig 1) applies (bulk updates) the log records (disclosed in Col 3 lines 48- Col 4 line 2). The motivation is the same as that for claim 1.

Claim 18 Rastogi does not disclose sending a bulk update message.

Mikkelson discloses sending one or more (plurality) commands (bulk update messages) to a secondary storage device, triggering the secondary device to record the corresponding information onto a secondary storage medium (Col 5 line 8-21). The motivation is the same as that for claim 1.

Claim 19 Rastogi discloses a transaction processor that transmits log records (transactional update messages) to a secondary storage device (disclosed in Col 3 lines 35-46). The motivation is the same as that for claim 1.

Claim 20 Rastogi does not disclose initiating a first bulk update including the new request if the particular group of entries is subject to the bulk update technique.

Mikkelson discloses a pending mode in which indicators of updated information is stored, and write requests (new bulk updates) are received from a host (disclosed in Col 10 lines 6-47). The pending mode is succeeded by a duplexing mode that records the appropriate information at the appropriate location (disclosed in Col 9 lines 16-26). The motivation is the same as that for claim 1.

Claim 21 Rastogi does not disclose initiating a second bulk update for the particular group of entries prior to receiving a new request.

Mikkelson discloses a number of different operating modes; duplexing, suspended, and pending, in which a primary controller operates alternatively. The operation of these different modes results in constant updating as is appropriate, and can read on bulk updating prior to receiving a new request (see claim 20). The motivation is the same as that for claim 1.

Claim 22, 23 Rastogi does not disclose an acknowledgment and updating the indication of the need for a bulk update technique.

Mikkelson discloses a positive (claim 22) or negative (claim 23) acknowledgement being indicating if a write is successful or not (disclosed in Col 9 lines 17-33). This acknowledgment is sent to the primary controller for verification (update). The motivation is the same as that for claim 1.

Claim 24 Rastogi does not disclose a second transactional acknowledgement.

Mikkelson discloses a number of different operating modes, where the duplexing mode is experienced a number of times. At the end of this mode, an

acknowledgement is sent each time this mode is repeated (see claim 22 and 23). The motivation is the same as that for claim 1.

Claim 25 Rastogi discloses a primary database (active) residing on a primary computer (element 110 in Fig 1). Rastogi discloses a secondary computer/ database (see element 120 in fig 1) being operated as a hot spare (Col 2 lines 45-50). The motivation is the same as that for claim 1.

Claim 26 Rastogi discloses primary and secondary computers/databases (elements 121 and 111 in Fig 1). The motivation is the same as that for claim 1.

Claim 30 Rastogi discloses the secondary computer having a secondary database to which the log records generated in the primary database are updated (disclosed in Col 3 line 48- Col 4 line 2). The motivation is the same as that for claim 1.

Claim 31 Rastogi discloses the secondary computer having a secondary database to which the log records generated in the primary database are updated (disclosed in Col 3 line 48- Col 4 line 2). The motivation is the same as that for claim 1.

Response to Arguments

4. Applicant's arguments filed May 3, 2005 have been fully considered but they are not persuasive.

(a) The applicant argued that the cited art does not disclose Applicants claimed "transactional updating the second database".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 1, wherein Rastogi discloses updating a database with transaction updates (Col 8 lines 3-44), where the database may exist in a second system (Col 5 lines 66-Col 6 lines 5). It would have been obvious to one of the ordinary skill in the art at the time of the invention that transactional updating a database is merely updating a transaction log pertaining to recent transactions that have transpired or will transpire.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine the controller (Col 6 lines 39-53) as disclosed by Mikkelsen within each of the systems

as disclosed by Rastogi. The motivation for this combination is to control the operation of transferring data and recording data within a database.

(b) The applicant argued that the cited art does not disclose Applicants claimed "bulk updating only during a booting or reconciliation phase of the standby controller".

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 3, wherein Rastogi discloses resynchronization occurring every time a system log is flushed to disk (Col 3 lines 48-Col 4 lines 2), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that the bulk updating as disclosed in the rejection of claim 1 occurs at this instance (resynchronization phase). These constant updates ensure constant resynchronization.

(c) The applicant argued the rejection of claim 4 as being inconsistent with the application of Mikkelson et al. to claim1.

The examiner maintains that the same limitation, in its broadest term, is already discussed in the rejection of claim 4, wherein Mikkelson discloses a primary device sending a message to the secondary device initiating recording (Col 9 lines 16-26).

(d) The applicant argued that the cited art does not teach the Applicants claimed "plurality of entries are grouped into a plurality of groups".

The examiner maintains that the same limitation, in its broadest term, is discussed in the rejection of claim 6, 7 and 8, wherein Mikkelson discloses identification information indicating update information and other identifiers (Col 8 line 63- Col 9 line

12), where it would have been obvious to one of the ordinary skill in the art at the time of the invention that an identifier may be used to group a plurality of entries.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Klostermann (US 6421687) discloses using transaction log records to update a standby database and a transaction manager to respond to queries.

(b) Burrows (US 5963954) discloses grouping a plurality of entries into element groupings.

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art Unit 2667

July 31, 2005

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SUPERVISORY PATENT EXAMINER
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8/3/05